The egu.cls User Manual

How to produce LaTeX manuscripts for journals of the *European Geosciences Union*

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1 Introduction

Copernicus and the *European Geosciences Union* (EGU) provide the Editorial Office and/or Production Office for a number of journals that they support. These are:

EGU:
Advances in Geosciences
Annales Geophysicae
Atmospheric Chemistry and Physics
Biogeosciences
Climate of the Past
Hydrology and Earth System Sciences
Natural Hazards and Earth System Sciences
Nonlinear Processes in Geophysics
Ocean Science

Copernicus:
Advances in Radio Science
Astrophysics and Space Sciences Transactions
Social Geography

In addition to these journals, the EGU also publishes books consisting of collections of articles, each by different authors. Their production is very much like that of a single journal issue.

Manuscripts have to be written in English and the authors are responsible for correct spelling and grammar.

The goal is to achieve fast and inexpensive production of the articles. In order to maintain a high quality, all manuscripts accepted for publication are typeset in the EGU journal style by the EGU Production Office in LaTeX.

The manuscript must be prepared in accordance with the rules on the layout. For those authors with access to the document preparation system LaTeX, the class file `egu.cls` is provided containing these requirements. Manuscripts must be submitted as electronic files to the EGU Office with figure files in the correct format, as explained on the EGU web pages of the individual journals.

No further support for the obsolete LaTeX version 2.09 is provided. The old syntax will still function, but only with LaTeX 2_ε in its "compatibility" mode. Since this mode is only meant for processing old documents, that syntax is deprecated today. Here LaTeX means LaTeX 2_ε.

General information on how to write papers in LaTeX is provided in the basic manuals by Lamport (1994) and Kopka and Daly (1999).

2 Using the EGU package

Authors who are familiar with LaTeX should have no problems using the EGU package. Even if the manuscript has already been written using standard LaTeX without `egu.cls`, it will be easy to adapt it. The most important changes are inserting extra information to the title page and to the header of each page.

The distribution contains the files `example1.tex` and `example2.tex` which demonstrate the features of the package. The file `example1.tex` is a simple text-only example. The file `example2.tex` is similar to `example1.tex` but will also include a graphics file. Perhaps the easiest thing to do is to process these files under LaTeX (or pdfLaTeX) and to compare the results with the input text in the file.

There is also the file `template.tex`, which is an almost empty template into which you can enter your text. The template file basically contains the following text:

```
\documentclass[JNL]{egu}
\begin{document}
\title{TEXT}
\author{NAME}
\affil{ADDRESS}
\runningtitle{TEXT}
\runningauthor{NAME}
\correspondence{NAME (EMAIL)}
\maketitle
\begin{abstract}
TEXT
\end{abstract}
\introduction
TEXT
\section{HEADING}
MAIN TEXT
\conclusions
TEXT
\begin{acknowledgements}
TEXT
\end{acknowledgements}
\begin{thebibliography}{}
\bibitem[AUTHOR(YEAR)]{LABEL} REFERENCE1
\bibitem[AUTHOR(YEAR)]{LABEL} REFERENCE2
...
\end{thebibliography}
\end{document}
```

The meaning of the individual elements is explained

in the following sections. Text printed in upper case letters should be replaced with your own.

2.1 The LaTeX Preamble

The EGU package is invoked by giving its name in the `\documentclass` command:

`\documentclass[`*JNL*`]{egu}`

The argument "*JNL*" in square brackets must be replaced by the acronym of the journal for which the manuscript has been written. The possibilities are:

Atmospheric Chemistry and Physics:	`acp`
Biogeosciences:	`bg`
Climate of the Past:	`cp`
Hydrology and Earth System Sciences:	`hess`
Ocean Science:	`os`

Please find instructions how to insert traditional journals in Sect. 4.1.

The style files `amssymb.sty`, `array.sty`, `color.sty`, `fix2col.sty`, `german.sty`, `graphicx.sty`, `ifthen.sty`, `lineno.sty`, `multicol.sty`, `textcomp.sty`, `times.sty`, and `url.sty` are automatically included, if they are available. The functionality of `natbib.sty` is also available. Any additional macros or packages of the authors may be employed with the `\usepackage` command as usual, provided that they do not change the page layout. However, the style files must be submitted to the Editorial Office along with the LaTeX file.

Most options required in the EGU Journal style have been incorporated into `egu.cls`. The options `twocolumn`, `twoside`, `titlepage`, `fleqn`, `11pt`, and `12pt` may be called but either will be ignored or are always active anyway.

2.2 Title and authors

As in standard LaTeX, information for the title block is entered by means of the commands:

```
\title{...}
\author{...}
```

to which the EGU package adds:

```
\affil{...}
```

The text of the title should be entered with usual English sentence style: capitalize only the first word and any word that is normally written capitalized.

There are two ways to enter the list of authors depending on the number of affiliations and other notes.

If there is only one affiliation, enter each author's name singly with the `\author` command. Add the affiliation with the `\affil` command after all authors:

```
\author{I.~M.~First}
\author{U.~R.~Second}
\affil{Institute for Physics}
```

This results in:

I. M. First and U. R. Second
Institute for Physics

If there are two or more affiliations, or if some additional note is required, then superscripts can be given in square brackets, as for example:

```
\author[1]{I.~M.~First}
\author[2]{U.~R.~Third}
\author[*,1]{U.~R.~Second}
\affil[1]{Institute for Physics}
\affil[2]{School of Chemistry}
\affil[*]{On leave}
```

This produces:

I. M. First[1], U. R. Third[2], and U. R. Second[*,1]
[1]Institute for Physics
[2]School of Chemistry
[*]On leave

If the list of authors and affiliations is larger than the allocated space, you can increase the height of the title block with the `\titleheight{...}` command. The default is `\titleheight{7.5cm}`.

Some additional pieces of information are necessary:

`\runningauthor{...}` and `\runningtitle{...}` are the abbreviated list of authors and a short title for the running heads, respectively.

`\correspondence{...}` contains the name and email address of the author to be addressed for correspondence and proofs. Please include the email address in round parentheses, e.g.:

```
I.~M.~First (imfirst@xyz.org)
```

As usual, the actual title is produced with the command `\maketitle` which must be issued after all the above have been given.

2.3 Abstract

For journal articles, an abstract must be inserted into the `abstract` environment, as

```
\begin{abstract}
  Text of abstract...
\end{abstract}
```

There is no abstract for articles in books.

Keywords are only used for Annales Geophysicae and not necessary for all other journals.

2.4 Introduction

The introduction must be part of every manuscript. To ensure this, the command `\introduction` is available and must be used rather than `\section{Introduction}`. If you want to use a slightly different title, you can add it in *square* brackets, e.g.:

```
\introduction[Motivation]
```

2.5 Sectioning

The sectioning commands of the LaTeX `article` class may be used as normal, although their effects are somewhat different. They have been redefined to produce the sectioning requirements of the EGU.

`\section` produces a bold heading, flush left, in the normal font size. For books, the title is bold, 12 pt.

`\subsection` produces a flush left heading in plain type. For books, the title is bold, 11 pt.

`\subsubsection` is the same as `\subsection` except for the numbering. For books, the title is bold, 10 pt.

2.6 Conclusions

The conclusions must be part of every manuscript. To ensure this, the command `\conclusions` is available and must be used rather than `\section{Conclusions}`. If you want to use a slightly different title, you can add it in *square* brackets, e.g.:

```
\conclusions[Summary and conclusions]
```

2.7 Acknowledgements

Acknowledgements are to be included with the `acknowledgements` environment, as

```
\begin{acknowledgements}
We wish to thank ...
\end{acknowledgements}
```

There is also a corresponding `acknowledgement` environment for a singular acknowledgement.

2.8 References

The references must be put into the `thebibliography` environment, e.g.:

```
\begin{thebibliography}{}
\bibitem[Jones et al.(1990)]{jones90}
  Jones, J. K., Thomas, P. R., and
  Peters, R. F.: The best results
  of fitting curves, J. Math. Dev.,
  12, 1245--1261, 1990.
\bibitem[Jones and Thomas(1991)]{jones91}
  Jones, J. K. and Thomas, P. R.:
  More results of fitting curves,
  J. Math. Dev., 13, 335--339, 1991.
\bibitem[Helliwell(1965)]{helliwell65}
  Helliwell, R. A.: Whistlers and
  related ionospheric phenomena,
  Stanford Univ. Press, California, 1965.
\end{thebibliography}
```

The argument in square brackets (e.g. "`[Jones et al.(1990)]`") is the citation that will appear in the text when you cite this article, as explained in Sect. 3.5.

Alternatively, if you are using BibTeX, you can use the BibTeX style file `egu.bst` that is provided as part of the EGU package, as explained in Sect. 3.6.

3 Extra features

3.1 Figures

Authors must provide electronic versions of all their figures. Vector graphics in the file formats `eps` and `pdf` are preferred. For pictures, `png` and `jpg` are also possible. Colour illustrations are accepted at no additional charge. Authors are encouraged to make use of this feature. Figures are included into the document with the figure environment. As an example, if a plot exists as an encapsulated PostScript file named `orbit.eps`, then it could be included directly with the commands

```
\begin{figure}[t]
  \vspace*{2mm}
  \begin{center}
    \includegraphics{orbit}
  \end{center}
  \caption{The orbits of some planets.}
  \label{fig:orbit}
\end{figure}
```

For this to work, you must have the `graphicx` package, which is included in recent LaTeX versions. If you use pdfLaTeX instead of LaTeX, you must provide the orbit plot as either `orbit.pdf` or `orbit.jpg`. You should give the graphics file name in the `\includegraphics` command without an extension.

Figures stretching over both columns can be produced with the starred version, i.e. the `figure*` environment:

```
\begin{figure*}[t]
  \vspace*{2mm}
  \begin{center}
    \includegraphics{orbit}
  \end{center}
  \caption{The orbits of some planets.}
  \label{fig:orbit}
\end{figure*}
```

It is possible to scale figures to the full text width or to the width of one column with the `\includegraphics` command:

```
\includegraphics[width=\textwidth]{orbit}
\includegraphics[width=\columnwidth]{orbit}
```

The command `\figbox*` can be used for figures stretching over approximately one and a half columns. The width of the figure should be about 12 cm, and the caption will be placed beside the figure at the right:

```
\begin{figure*}
  \vspace*{2mm}
  \figbox*{}{}
    {\includegraphics[width=12cm]{orbit}}
  \caption{The orbits of some planets.}
  \label{fig:orbit}
\end{figure*}
```

If a figure is very large and split over two pages, the command `\addtocounter{figure}{-1}` can be used between the figure environments to ensure that both parts get the same figure number, e.g.:

```
\begin{figure*}[t]
...
\includegraphics{subfigure1}
...
\caption{The orbits of some planets.}
\end{figure*}
\addtocounter{figure}{-1}
\begin{figure*}[t]
...
\includegraphics{subfigure2}
...
\caption{Continued.}
\end{figure*}
```

3.2 Tables

Tables are created with the `tabular` environment and included in the text within a `table` or `table*` environment. The former is used for a table of single-column width, while the latter is for tables of two-column width. The tables should be horizontally centered. The `\caption` command comes at the top. For horizontal rules at the top, in the middle and at the bottom of the table, the commands `\tophline`, `\middlehline`, and `\bottomhline` should be used, e.g.:

```
\begin{table}[t]
  \caption{Chemicals.}
  \vskip4mm
  \begin{center}
    \begin{tabular}{ll}
```

```
      \tophline
      name    & formula\\
      \middlehline
      ozone   & \chem{O_3}\\
      methane & \chem{CH_4}\\
      \bottomhline
    \end{tabular}
  \end{center}
\end{table}
```

If a table is very large and must be split over two pages, the command `\addtocounter{table}{-1}` can be used between the `table*` environments to ensure that both parts get the same table number, e.g.:

```
\begin{table*}[t]
\caption{Chemicals.}
...
\end{table*}
\addtocounter{table}{-1}
\begin{table*}[t]
\caption{Continued.}
...
\end{table*}
```

3.3 Alternative texts for one or two columns

Mathematical formulas often have to be fiddled with to fit them into the narrow confines of a single column in two-column format, whereas they will fit with no problem into the wide columns of the one-column layout. This often results in the author having to massage his formulas when changing between these layouts. The new command `\iftwocol` allows both versions of the text to be included in one document, for automatic selection depending on whether two-column mode is active or not. Its syntax is:

`\iftwocol{`*yes*`}{`*no*`}`

where *yes* is the text that is inserted if two-columns are in effect, and *no* the text that is otherwise taken. For example, a line break may be necessary for the two-column layout where a space is sufficient for the longer lines of the one-column layout:

```
\iftwocol{\\}{ }
```

This command may be used in other situations, but the main application is this mathematical one.

3.4 Chemical formulas and physical units

Chemical formulas and physical units often contain superscripts and subscripts. It is thus desirable to use the LaTeX math mode for them. However, according to the IUPAC recommendations by Mills et al. (1993), they must be typeset using the normal upright font whereas the LaTeX math mode produces italics. Therefore the EGU package provides the new commands `\chem` and `\unit` that should be used for chemical formulas and physical units:

`\chem{HSO_4^-}`	prints	$\mathrm{HSO_4^-}$
`\unit{mol~dm^{-3}}`	prints	$\mathrm{mol\,dm^{-3}}$

Several arrows are provided by LaTeX for chemical reactions:

`\rightarrow`	prints	$\rightarrow$
`\rightleftharpoons`	prints	$\rightleftharpoons$
`\leftrightarrow`	prints	$\leftrightarrow$

`\rightarrow` should be used for normal (one-way) chemical reactions and `\rightleftharpoons` for equilibria. Note that `\leftrightarrow` is reserved for resonance structures, which are rarely used in the geosciences.

Using the `equation` and `eqnarray` environments, LaTeX automatically numbers the equations as (1), (2), (3), and so on. Articles in the geosciences often contain chemical reactions as well as physical equations. For this purpose, `egu.cls` provides the new environments `reaction` and `rxnarray` which create labels including the letter R, i.e. (R1), (R2), (R3), and so on. The numbering of equations and reactions is independent of each other. These new environments can be used in the same way as `equation` and `eqnarray`, e.g.:

```
\begin{reaction}
\chem{O_3} + h\nu \rightarrow
  \chem{O_2} + \chem{O}
\end{reaction}
```

```
\begin{rxnarray}
\chem{O_3} + h\nu
  & \rightarrow
  & \chem{O_2} + \chem{O}\\
\chem{O} + \chem{O_2}
  & \rightarrow
  & \chem{O_3}
\end{rxnarray}
```

Table 1: Citations

LaTeX command	example result
`\citet{jones90}`	Jones et al. (1990)
`\citep{jones90}`	(Jones et al., 1990)
`\citep{jones90,jones93}`	(Jones et al., 1990, 1993)
`\citep[p.~32]{jones90}`	(Jones et al., 1990, p. 32)
`\citep[e.g.,][]{jones90}`	(e.g., Jones et al., 1990)
`\citep[e.g.,][p.~32]{jones90}`	(e.g., Jones et al., 1990, p. 32)
`\citeauthor{jones90}`	Jones et al.
`\citeyear{jones90}`	1990

3.5 Literature citations

The EGU journals use the author-year system of literature citation, which is not supported by standard LaTeX. The EGU package does support it, with and without the BibTeX program. All commands explained here are also listed in Table 1.

Since there are two ways of making a citation in the author-year system, either as "Jones et al. (1990)" or as "(Jones et al., 1990)", there are two variants of the original `\cite` command. Suppose the key for the above reference is `jones90`, then use

`\citet{jones90}` for Jones et al. (1990)

and

`\citep{jones90}` for (Jones et al., 1990).

Optional arguments can be used to add notes inside the citation: a single argument behaves as in standard LaTeX, i.e. it produces a note *after* the citation. However, with two optional arguments (non-standard), the first goes *before*, the second *after* it. Two other citation commands are available. `\citeauthor{jones90}` prints the author and `\citeyear{jones90}` prints the year of a citation.

For the above examples to function properly, either the bibliography style `egu.bst` must be used with BibTeX, or the `thebibliography` environment must be formatted accordingly.

If you want to cite a web page (URL), you should use the `\url` command. This has two advantages. First, no hyphen will be added if a line break appears within a long URL. Second, characters that appear often in an URL but have a special meaning in LaTeX like `~` and `_` can be used directly within the `\url` command. For example, `\url{http://www.xyz.org/~jones/idx_g.htm}` will produce `http://www.xyz.org/~jones/idx_g.htm` and the direct link from the pdf file to the webpage.

3.6 BibTeX

The EGU package provides the BibTeX style file `egu.bst`. If you use BibTeX, you can enter the following two lines instead of writing the `thebibliography` environment manually:

`\bibliographystyle{egu}`
`\bibliography{`*bib_file*`}`

Here, *bib_file* refers to your bibliography file with the suffix `bib`. To produce the References section, the usual procedure with BibTeX is to run LaTeX, then BibTeX, and then LaTeX two more times, e.g.:

```
latex myfile.tex
bibtex myfile
latex myfile.tex
latex myfile.tex
```

A reference often contains a link to a web page (URL) or a digital object identifier (DOI). If you use BibTeX with the `egu.bst` style file, you can enter an URL or DOI in your `bib` file as e.g.:

```
URL = {http://www.xyz.org/~jones/idx_g.htm}
DOI = {10.1029/2001JD000942}
```

3.7 Times Roman fonts

If the `times` package with the Times Roman fonts exists in your LaTeX installation, it will be used automatically. This package also replaces the sans serif font with Helvetica. If you do not have access

to PostScript fonts through LaTeX, then you must use the Computer Modern fonts that are standard. On no account should you select one of the other PostScript fonts!

3.8 Miscellaneous

The egu macros `\permil` and `\degree` produce the permil and the degree sign, respectively, which are often used in the geosciences but not part of standard LaTeX. The command `\vec` has been changed to produce a bold-face italics symbol that is used for vectors (instead of the arrow over the symbol). To obtain the bold-face upright font for matrices, use the standard LaTeX command `\mathbf`.

`\permil`	prints	‰
`42\degree\,N`	prints	42° N
`100\unit{\degree C}`	prints	100°C
`\vec{x}`	prints	$\boldsymbol{x}$

In general, all units are seperated from the number using `\,` to create a small space.

Please remember that it is necessary to add "`\ `", i.e. a backslash and a space, if one of these commands is directly followed by a space, e.g. "`5 \permil\ or less`" prints "5 ‰ or less".

For multiplication, the LaTeX command `\times` should be used. The character `*` or `\cdot` must not be used for this purpose.

3.9 Metainfo

Some additional pieces of information cannot be entered by the author, but rather by the editorial office after final submission of the LaTeX file. Authors can include these commands but should not enter any values.

`\msnumber{...}`	Manuscript number
`\received{...}`	Date manuscript was received
`\revised{...}`	Date manuscript was revised (optional)
`\accepted{...}`	Date manuscript was accepted
`\pubdiscuss{...}`	Date manuscript was published in discussion journal
`\published{...}`	Date manuscript was published in its final form
`\firstpage{...}`	The first page number
`\pubyear{...}`	The year of publication
`\pubvol{...}`	The volume number of the journal
`\pubnum{...}`	The "number" within a volume

4 Journal-specific considerations

4.1 Considerations for journals with traditional layout

The name of the journal in which the paper is to appear must be given by means of the `\journal` command. Its argument should be one of the predefined commands:

`\ADGEO`	Advances in Geosciences
`\AG`	Annales Geophysicae
`\NHESS`	Natural Hazards and Earth System Sciences
`\NPG`	Nonlinear Processes in Geophysics
`\ARS`	Advances in Radio Science
`\SG`	Social Geography

For example, `\journal{\NPG}` for Nonlinear Processes in Geophysics, or simply write the name of the journal in full., e.g. `\journal{Advances in Geosciences}`.

4.2 Considerations for two-stage journals

For the two-stage journals, the following differences apply:

- The sections created with `\introduction` and `\conclusions` are mandatory because in the

online version of the paper there are buttons linking to these sections.

- There is no need to define `\journal`.
- Authors are strongly encouraged to use the commands `\label` and `\ref` when referring to figures, tables, and sections. For citations, the commands `\bibitem` and `\citep` (or `\citet`) should always be used. If done correctly, they will automatically be converted into hypertext links when the online pdf file is produced at the EGU office.
- There is no special numbering of sections, equations, figures and tables in the appendix. Therefore, please do not use the `\appendix` command.
- The command `\printfigures` must not be used.
- It is possible to produce the correct URL of the electronic supplement of your paper with the `\supplement{`*suffix*`}` command. The *suffix* can be any of the file name extensions that are allowed for an electronic supplement, i.e.: `pdf`, `zip`, `tar.gz`, or `mpg`. For example, if your article appears at page 321 in volume 3 of Atmospheric Chemistry and Physics, `\supplement{zip}` will produce:
  `http://www.atmos-chem-phys.org/acp/3/321/acp-3-321-sp.zip`

4.3 Considerations for journals with German text

For journals with German text, two abstracts are required: one in German and one in English. The first abstract is in the main language, the second in the other one. Simply put the two texts into two separate `abstract` environments. The heading switching (and word division rules) will change automatically. The German abstract uses different word divisions and is entitled *Zusammenfassung*.

The package `german.sty` should exist on your system, and will be loaded automatically if it can be found. This simplifies the typing of German texts, and selects German word divisions, if installed. By default, the German titles and word divisions are implemented. If the text is to be in English, give

```
\selectlanguage{english}
```

before the text begins.

All environment names are the same as for English text. Thus the environments `acknowledgement` and `acknowledgements` produce the headings *Danksagung* and *Danksagungen*, respectively. Similarly for `figure` and `table`. (This does not apply if English has been selected as the main language.)

References

Kopka, H. and Daly, P. W.: A Guide to LaTeX—Document Preparation for Beginners and Advanced Users, Addison Wesley Longman, Reading, MA, 3rd edn., 1999.

Lamport, L.: LaTeX—A Document Preparation System, Addison-Wesley, Reading, MA, 2nd edn., 1994.

Mills, I., Cvitaš, T., Homann, K., Kallay, N., and Kuchitsu, K.: International Union of Pure and Applied Chemistry: Quantities, Units and Symbols in Physical Chemistry, Blackwell Science, Boca Raton, 1993.

5 Reference sheet

`\accepted{`*date*`}` enters the date that the paper was accepted for publication (to be inserted by the Production Office).

`\affil{`*address*`}` enters the affiliation that applies to all the previous authors since the last `\affil` entry.

`\affil[`*num*`]{`*address*`}` enters an affiliation with the explicit superscript *num*.

`\author{`*name*`}` enters the name of one author.

`\author[`*num*`]{`*name*`}` enters the name of one author with the explicit affiliation superscript *num*.

`\begin{acknowledgement}`... `\end{acknowledgement}` is a new environment for entering the text of one acknowledgement.

`\begin{acknowledgements}`... `\end{acknowledgements}` is a new environment for entering the text of several acknowledgements.

`\begin{reaction}...\end{reaction}` is a new environment similar to `equation` for entering a chemical reaction.

`\begin{rxnarray}...\end{rxnarray}` is a new environment similar to `eqnarray` for entering several chemical reactions.

`\bottomhline` prints a horizontal line in a table with some space above it. It should be used at the bottom of a table.

`\chem{`*formula*`}` prints a chemical formula using the correct upright font.

`\citeauthor{`*key*`}` prints the author of a citation as "Jones et al.".

`\citep{`*key*`}` prints a citation in parenthetical form as "(Jones et al., 1990)".

`\citep[`*after*`]{`*key*`}` prints a citation including a note after the main citation.

`\citep[`*before*`][`*after*`]{`*key*`}` prints a citation including two notes before and after the main citation.

`\citet{`*key*`}` prints a citation as "Jones et al. (1990)".

`\citeyear{`*key*`}` prints the year of a citation as "1990".

`\conclusions[`*title*`]` starts the conclusions section (optionally using the title *title*).

`\correspondence{`*name (email)*`}` enters the name and email address of the author to be addressed for correspondence and proofs. Include the email address in round parentheses.

`\degree` prints the degree sign.

`\figbox*{`*width*`}{`*height*`}{`*contents*`}` can be used for figures stretching over approximately one and a half columns. The width of the figure should be about 12 cm, and the caption will be placed beside the figure at the right. The specifications *width* and *height* must contain dimensions, such as `4cm`. Alternatively, if they are left empty (as `{}`), then the box is scaled automatically to its contents.

`\firstpage{`*page_number*`}` enters the page number of the first page (to be inserted by the Production Office).

`\iftwocol{`*yes*`}{`*no*`}` prints alternative text depending on whether or not the two-column mode is active. This is useful for alternative formatting of math formulas.

`\introduction[`*title*`]` starts the introduction section (optionally using the title *title*).

`\journal{\`*name_cmd*`}` enters the name of the journal as one of the allowed name commands, such as `\NPG`.

`\middlehline` prints a horizontal line in a table with some space above and below it. It can be used in the middle of a table.

`\msnumber{`*num*`}` enters the manuscript number (to be inserted by the Production Office).

`\permil` prints the permil sign.

`\printfigures` anywhere in the text will ensure that figures are printed out at the end of the manuscript. The captions will always be printed on a separate page. `\printfigures` is only used for the traditional layout, not for the two-stage journals.

`\pubdiscuss{`*date*`}` enters the date that the manuscript was published in the discussion stage (to be inserted by the Production Office).

`\published{`*date*`}` enters the date that the manuscript was published in its final form (to be inserted by the Production Office).

`\pubnum{`*num*`}` enters the "number" within the volume (rarely used) (to be inserted by the Production Office).

`\pubvol{`*vol*`}` enters the volume number of the journal (to be inserted by the Production Office).

`\pubyear{`*year*`}` enters the year when the article is published (to be inserted by the Production Office).

`\received{`*date*`}` enters the date that the manuscript was submitted (to be inserted by the Production Office).

`\revised{`*date*`}` enters the date that the revised manuscript was received (to be inserted by the Production Office and omitted if there were no revisions).

`\runningauthor{`*text*`}` enters the abbreviated list of authors that appears at the top of all pages (except for the first page).

`\runninghead{`*name*`}` is an obsolete command. Please use both `\runningauthor{`*text*`}` and `\runningtitle{`*short_title*`}`) instead.

`\runningtitle{`*short_title*`}` enters the short title that appears at the top of all pages (except for the first page).

`\selectlanguage{`*lang*`}` (for Advances in Radio Science) switches the titles and word divisions between *lang*=`english` and `german`. To be given before the beginning of the text.

`\title{`*title*`}` enters the title of the manuscript.

`\titleheight{`*height*`}` increases the height of the title block (default = 7.5 cm).

`\tophline` prints a horizontal line in a table with some space below it. It should be used at the top of a table.

`\unit{`*phys_unit*`}` prints a physical unit using the correct upright font.

`\vec{...}` prints a bold-face italics symbol used for vectors.